

# Rain Barrel and Cistern Guide

## What Is a Rain Barrel?

A rain barrel collects and stores rainwater from your roof so it can be used during periods of limited rainfall to:

- Water your lawn, garden, or indoor plants,
- Wash your car, boat, dog, or muddy shoes, and
- Fill your birdbaths.

## What Is a Rain Cistern?

A rain cistern is just like a rain barrel only it is larger, can be above or below ground, and is primarily for watering your landscaping. It may also be used indoors for flushing toilets and washing machines. Drinking rainwater is possible when water treatment products are incorporated into the system.

## A Rich History and a Conscientious Future

Rainwater collection, or harvesting, has a long tradition extending back to ancient Yemen, Rome, and the Meso-American city of Xochicalco. Rainwater harvesting began 2000 years ago in Thailand, and the ancient Israelites constructed a 2 million gallon cistern out of bedrock beneath the old temple of Jerusalem. In the Colonial era, rainwater was collected in wooden barrels. Small concrete cisterns were common storage structures for families settling on the Great Plains during the 18th and 19th centuries. Now, as shrinking aquifers and droughts across America begin to call attention to an increasing water crisis, homeowners are returning to rainwater harvesting to save money and protect this most precious of natural resources.

### Rainwater Harvesting Is Part of the Bigger Picture of:

- Water Conservation
- Low Impact Living
- Stormwater Management
- Watershed Protection

## What Are Some Benefits of Rain Barrels and Cisterns?

### Reducing Municipal Water Demand

Using rainwater for landscaping and household needs frees up municipal water for necessities such as firefighting during the peak summer months, when reserves are low. Reducing our demand during peak months mitigates the need to add water infrastructure such as wells and storage tanks, which may increase rates for consumers.

### Reducing Stormwater Runoff

As land is developed for homes and businesses, more land is covered by impervious surfaces such as parking lots, driveways and buildings, so rainwater cannot slowly percolate into the soil and instead rushes into our waterways.

## Features

- A rain barrel has an opening in the top to allow in water from your downspout; a screened lid to keep out mosquitoes, leaves, and debris; an overflow hose to direct excess water away from the house's foundation; and often has a spigot to attach a hose to your rain barrel.
- You can use a garden hose, perforated hose for drip irrigation, or watering can to water your lawn and garden from your rain barrel. To attach a hose, your barrel needs to be elevated to allow water to flow through a hose by gravity.
- A rain cistern collects the rainwater from a roof and stores it either above or below ground. Piping, filters and a pump are used to distribute the rainwater for a variety of non-potable and potable uses depending on cistern features.



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Rainwater harvesting diverts stormwater which would carry pollution and debris such as pet waste, motor oil, fertilizer and pesticide runoff, litter and sediment into our lakes and streams. This pollution, and the enormous volume of stormwater that is swiftly propelled into our waterways after storm events, can increase flooding, erode streambeds, damage stream and lake life, and increase fecal coliform bacteria levels. This makes our waterways unsuitable for work and play. Rainwater harvesting is the first step to healthy streams, lakes and rivers.

Although stormwater is meant to route entirely to our storm system, some can find its way into our sewers. This can lead to waste water backups in our homes and businesses after heavy storms. By using rainwater harvesting, we can reduce stormwater flow into our wastewater system and keep wastewater backup out of our homes.

## Increasing Groundwater Recharge

Instead of becoming an issue for stormwater management, rainwater can be used to water your lawn and garden, and then slowly percolates into the soil where it recharges our precious groundwater supply. James City Service Authority's water supply comes from groundwater, and our supply is slowly shrinking. Rainwater harvesting is part of the solution.

## Happier Plants

Rainwater is better for your plants than tap water because it lacks chlorine and fluoride. Naturally soft and mildly acidic, rainwater helps plants grow and absorb important minerals from the soil.

## Ease and Flexibility

Rain barrels are inexpensive and easy to build and install. As water storage needs change, rain barrels can be easily added and linked.

## Promoting a Conscientious Culture

One of the best reasons to start harvesting rainwater is that you will spread the culture of rainwater collection and in turn help your larger community and the environment.

Rainwater harvesting should be used in conjunction with other stormwater management and low impact development features, such as green roofs, rain gardens, porous pavement and proper retention pond maintenance.

## Considerations

### Landscaping and Washing Needs

Most rain barrels hold about 50 gallons and can be strung end to end. Rain cisterns typically hold 1,000 to 5,000 gallons. To qualify for our cistern rebate, your cistern must hold 1,000 gallons or more. To estimate your landscape water needs, subtract your winter water from your summer water usage.

### Water Catchment Potential

One inch of rain on 1,000 horizontal square feet of roof yields 600 gallons of rainwater. James City County averages 47 inches of precipitation per year. That means 28,200 gallons of rainwater fall on the same roof over the course of a year. Increase storage capacity by using rain barrels in series or a rain cistern. The greater your storage capacity, the better your yard can weather a dry spell.

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To calculate your own roof's catchment potential, fill in the blanks to find out how much water you can catch!

Rain caught (gallons) \_\_\_\_\_ = (inches of rain) \_\_\_\_\_ x (0.6) x (horizontal square footage of your house that drains into rain barrel) \_\_\_\_\_

## Cost

Finished rain barrels run \$80 to \$190 for 50-65 gallons of storage. Constructing a rain barrel yourself should cost only \$15 to \$40. Typically, a dollar per gallon of storage is the rule of thumb for pricing larger rain cisterns. A rain cistern can cost \$700 to \$10,000 depending on whether installation is included.

## Space

If you are installing a rain barrel, check that you have room near your downspout. Your rain barrel will need a flat, stable surface to sit upon. Cisterns are large and require careful planning around your home or office. They do not need to be located adjacent to the building since piping and pumps will convey the rainwater.

## Care

Use rain barrel water within a week or two to discourage algal growth. Hose out your rain barrel twice each summer to remove debris. Keep a screen on your rain barrels to prevent mosquitoes from breeding. If mosquitoes remain a problem, mosquito dunks can effectively, safely, and inexpensively kill larvae. Rain barrels will need to be brought inside during the winter.

Algal growth should not be a problem in the case of a rain cistern because no light should enter. Clean out or replace filters as specified by retailer.

## Safety

Everyone loves water – including children. Be sure to buy or make a child-proof rain barrel.

## Water Quality

Porous or rough roofing materials (such as asphalt rolled roofing or shingles) tend to hold particulates, such as heavy metals from air pollution and bird feces. Wood shakes may leach wood preservatives containing heavy metals, and asphalt roofing may leach petrochemicals. Do not use rain barrel water for cooking or drinking. Rain barrel water is considered safe for plants except from roofs treated with moss killer. If moss killer has been used on your roof, let a few rain events bypass the barrel after moss killer application before collecting water.

Check with the retailer and the Williamsburg Area Environmental Health Office at 253-4813 before using your rain cistern for potable uses.



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### Where Do I Buy One Locally?

Check with your local hardware and gardening stores, or go to [jamescitycountyva.gov/bewatersmart.org](http://jamescitycountyva.gov/bewatersmart.org) and look for the "Rebates" link for a list of local rainwater harvesting retailers.

### How Do I Make a Rain Barrel or Cistern?

A wealth of instructions can be found online! Rain barrels are cheap and quick to make. Rain cisterns take more investment and creativity but can employ relatively inexpensive materials. Use an online search engine to find **make rain barrel** or **make rain cistern**.

If you're building your own rain barrel, see local food and beverage distributors and discount superstores for containers. Be sure to use a container that was made to hold liquid and has not contained dangerous chemicals. A trash can will not withstand the pressure of the water for long.



For more information on barrel distributors, go to [jamescitycountyva.gov/bewatersmart.org](http://jamescitycountyva.gov/bewatersmart.org) and look for the "Rebates" link.

## Requirements

- Applicant and installation address must be a JCSA residential water customer. Account balance must be current.
- Rain barrel(s), rain cistern, and/or materials rebate request must be submitted and received within 180 days of purchase and installation.
- Applicant is solely responsible for purchase and installation arrangements and payments.
- Applicant agrees to allow JCSA inspector access to the premises in order to verify installation if selected for random inspection.
- Survey and form must be completed in their entirety and copy of receipt enclosed to be eligible for rain barrel and cistern rebate.
- JCSA will refund purchase price of up to four rain barrels or materials to build them, with a maximum of \$25 per rain barrel.
- For purchase and installation of one rain cistern of at least 1,000 gallon capacity, JCSA will rebate 1/4 of your JCSA Lawn Irrigation System Fee, not exceeding the cost of the rain cistern, if you remain connected to JCSA water for irrigation. JCSA will rebate half of your JCSA Lawn Irrigation System Fee, not exceeding the cost of the rain cistern, if you do not connect to or disconnect from JCSA water for irrigation. If you paid your Lawn Irrigation System Fee, you will receive a refund in the amounts described above. For information on our Lawn Irrigation System Fee, go to the JCSA homepage at [www.jccEgov.com/jcsa](http://www.jccEgov.com/jcsa) and click on "Rates and Charges."
- Rebate checks will be processed within 4-8 weeks of receipt.

## Survey

- Type of structure: ☐ Single-family ☐ Multi-family ☐ Other: \_\_\_\_\_
- What is the main reason for installing your rain barrel(s) cistern? ☐ To save money on water bill  
☐ To reduce municipal water demand ☐ To reduce stormwater runoff ☐ To increase groundwater recharge  
☐ Happier plants ☐ Other: \_\_\_\_\_
- Do you plan on installing any other stormwater management, water conservation, or low impact development features, such as green roofs, rain gardens, porous pavement, or retention ponds?  
☐ Yes ☐ No If yes, what features? \_\_\_\_\_
- How much did this rebate influence your buying decision? ☐ Completely ☐ Somewhat ☐ Not at all
- Date of installation: \_\_\_\_\_ Brand/Model: \_\_\_\_\_
- Store/website of purchase: \_\_\_\_\_
- Gallons of water storage per rain barrel/cistern: \_\_\_\_\_ No. of rain barrels: \_\_\_\_\_
- How did you hear about this rebate? \_\_\_\_\_
- For cistern rebate only – Please have installation technician respond and sign:  
Did water customer disconnect from JCSA water line for irrigation: \_\_\_\_\_
- Signature: \_\_\_\_\_

## Applicant Information

Name: \_\_\_\_\_

Mailing address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Home phone number: \_\_\_\_\_ Email Address: \_\_\_\_\_

Installation address (if different): \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

## Disclaimer

*I certify that the listed rain barrel(s) cistern has/have been purchased and installed for use at the above named address and meet the requirements of the James City Service Authority (JCSA) Rain Barrel and Cistern Rebate Program. I understand that if I am required by my neighborhood to fulfill the actions rebated, then I am not eligible for the rebate. I also acknowledge that my home may be subject to an inspection by the JCSA or its agent to verify the information provided herein. I certify that I understand whether the water that is or has been contained in my rainwater harvesting system is potable and understand appropriate uses for that water. If I am using my rain barrel or cistern water for potable uses, I have contacted the Williamsburg Area Environmental Health Office and I understand the safety requirements. I understand that I will not be eligible for the submeter credit for landscape irrigation if I do not connect to or disconnect from JCSA water for irrigation.*

Please remit completed rebate form and copy of receipt to:  
Rain Barrel and Cistern Rebate Program  
c/o JCSA  
119 Tewning Road  
Williamsburg, VA 23188-2639  
Fax: 757-229-2463

*The JCSA may deny any application that does not meet program requirements. The JCSA does not guarantee any of the benefits in the preceding guide; nor does it warranty rain barrel(s)/cistern or associated products to be free of defects, the quality of the workmanship, and suitability of the premises for the installation of products. The applicant will hold harmless James City County, JCSA, its agents, directors, officers, and employees against all loss, damage, expense and liability arising out of or in any way connected to the installation of the above rain barrel(s)/cistern or associated products. The JCSA reserves the right to change or terminate this program at any time.*

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Rev. July 1, 2015

For more information on this and other water conservation rebates, call 757-259-5416,  
Email [jcsa@jamescitycountyva.gov](mailto:jcsa@jamescitycountyva.gov) or go to our website at [jamescitycountyva.gov/jcsa](http://jamescitycountyva.gov/jcsa)

Reason denied: \_\_\_\_\_

☐ Denied.

☐ Approved

Rebate Amount: \_\_\_\_\_

Signature: \_\_\_\_\_

Date Received: \_\_\_\_\_

Date Approved: \_\_\_\_\_

FOR JCSA USE ONLY